WHAT IS CLAIMED IS:

1. A laser processing method comprising;

forming a gate member on a semiconductor;

implanting an impurity into one region of said semiconductor adjacent to said member by ion irradiation with said member and a mask material as masks;

removing said mask material; and

doping an impurity having one conductivity type into another region of said semiconductor located adjacent to said member and opposite to said one region through said member by irradiating a laser light to a gaseous atmosphere comprising said impurity to form said another region to a depth shallower than that of said one region.

2. The method of claim 1 wherein said member comprises a floating gate.

3. The method of claim 1 wherein said one region overlaps with said member more widely than said another region overlaps with said member.

4. The method of claim 1 wherein at least a side of said member comprises an anodic oxide of a gate electrode material of said member.

5. The method of claim 1 wherein said atmosphere further comprises a gas selected from the group consisting of hydrogen, fluorine, helium, argon and neon.

6. The method of claim 1 wherein said laser light comprises a laser pulse.



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7. The method of claim 6 wherein said laser pulse has a pulse width of 1 μsec. or shorter.

8. The method of claim 1 wherein said laser light has an energy density of 150 to 350 $mJ/cm^2$.

9. The method of claim 1 wherein said laser light is an excimer laser light.

10. The method of claim 1 wherein said impurity is activated by an electric power in said atmosphere.

11. A method for forming a flash memory comprising:

forming a gate member comprising a floating gate, a control gate and an oxide provided on surfaces of said floating gate and said control gate on a single crystal substrate;

implanting an impurity into at least one region of said substrate adjacent to said member by ion irradiation with said member and a mask material as masks;

removing said mask material; and

doping an impurity having one conductivity type into another region of said substrate located adjacent to said member and opposite to said one region through said member by irradiating a laser pulse to a gaseous atmosphere comprising said impurity to form said another region to a depth shallower than that of said one region.

12. The method of claim 11 wherein said atmosphere further comprises a gas selected from the group consisting of hydrogen, fluorine, helium, argon and neon.

13. The method of claim 11 wherein said laser pulse has a pulse

width of 1 μsec. or shorter.

14. The method of claim 11 wherein said laser pulse has an energy density of 150 to 350 $mJ/cm^2$.

15. The method of claim 11 wherein said laser pulse is an excimer laser pulse.

16. A method for forming a semiconductor device comprising:

doping an impurity into a semiconductor layer by irradiating a laser pulse to a gaseous atmosphere comprising said impurity,

wherein a buried channel is formed in said semiconductor layer by said doping step.

17. The method of claim 16 wherein said atmosphere further comprises a gas selected from the group consisting of hydrogen, fluorine, helium, argon and neon.

18. The method of claim 16 wherein said laser pulse has a pulse width of 1 μsec. or shorter.

19. The method of claim 16 wherein said laser pulse has an energy density of 150 to 350 $mJ/cm^2$.

20. The method of claim 16 wherein said laser pulse is an excimer laser pulse.